

## Community Greenhouse Gas Emissions in 2007

### Detailed Report

	Equiv CO <sub>2</sub> (tonnes)	Equiv CO <sub>2</sub> (%)	Energy (GJ)
<b>Residential</b>			
<b>Warrenton, Virginia</b>			
<i>Warrenton Residential Buildings</i>			
Electricity	23,420	15.4	161,227
Light Fuel Oil	423	0.3	5,954
Natural Gas	13,408	8.8	252,324
Propane	625	0.4	10,041
Fuelwood (Air Dry)	9	0.0	1,195
<b>Subtotal Warrenton Residential Buildings</b>	<b>37,885</b>	<b>24.9</b>	<b>430,742</b>

1) The electrical information supplied by Glenn Etheridge, Regulatory Advisor at Dominion Power.

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Email-glenn.etheridge@dom.com

2) Natural Gas information supplied by Melinda Bateman at Columbia Gas.

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3) As in the 2002 Residential Buildings analysis, propane, fuel oil, and wood use were determined from the Virginia Tech spreadsheet developed by Virginia Tech student researchers. Damian Pitt, PhD student in Planning, Governance, and Globalization, was kind enough to get permission for me to use the spreadsheet. To come up with their spreadsheet, the students "assumed that the majority of homes still relying on these "other" fuels for heating are older homes, and are not likely to be very energy-efficient. Therefore, the spreadsheet included R-values for ceilings, windows, doors, walls, and floors that would be roughly equivalent to the minimum level of insulation needed to satisfy most current energy-efficient building codes. The homes were also assumed to be relatively small (1500sq.ft.). The spreadsheet also assumed other values, such as for internal heat gains, indoor setpoint, heating degree days, and design temperature that are considered appropriate for the Blacksburg area." (APPENDIX D-USE OF OTHER FUELS FOR RESIDENTIAL HEATING, VIRGINIA TECH SPREADSHEET)

The student researchers then used the year 2000 census figures to determine how many houses used these fuels as a primary source of heat and used those figures to enter into their spreadsheet. (dpitt@vt.edu)

4) Since there are only census figures available for the year 2000, I determined for 2007 that some of these houses have probably been renovated.

5) I decided to subtract 10 houses, as a conservative figure, from each of the number of houses that use propane and fuel oil in the year 2000 census and used each of those numbers in the Virginia Tech spreadsheet to come up with 2007 figures for the above fuels. I kept the wood figures the same, since I know even in a new house some people like to use wood as a primary source of heat.

6) I used The Weather Underground internet site to find Warrenton's weather history to determine Warrenton's heating degree days in 2007. The heating degree days for Warrenton 2007 was 4042DD. I then used that figure in the Virginia Tech spreadsheet.

<b>Subtotal Residential</b>	<b>37,885</b>	<b>24.9</b>	<b>430,742</b>
<b>Commercial</b>			
<b>Warrenton, Virginia</b>			
<i>State Government Buildings</i>			
Electricity	512	0.3	3,524
<b>Subtotal State Government Buildings</b>	<b>512</b>	<b>0.3</b>	<b>3,524</b>

1) The electrical information was supplied by Glenn Etheridge, Regulatory Advisor at Dominion Power.

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Email-(glen.etheridge@dom.com)			
<i>Warrenton Commercial Buildings</i>			
Electricity	40,450	26.6	278,461
Natural Gas	12,967	8.5	244,030
<i>Subtotal Warrenton Commercial Buildings</i>	53,416	35.1	522,490
<b>Subtotal Commercial</b>	53,928	35.4	526,015
<b>Industrial</b>			
<b>Warrenton, Virginia</b>			
<i>Warrenton Industrial Buildings</i>			
Electricity	923	0.6	6,353
<i>Subtotal Warrenton Industrial Buildings</i>	923	0.6	6,353
1) The electrical information was provided by Glenn Etheridge, Regulatory Advisor at Dominion Power. Phone-(804-771-3056) Email-(glenn.etheridge@dom.com)			
<b>Subtotal Industrial</b>	923	0.6	6,353
<b>Transportation</b>			
<b>Warrenton, Virginia</b>			
<i>Community Transportation</i>			
Gasoline	45,814	30.1	623,184
Diesel	9,707	6.4	130,037
<i>Subtotal Community Transportation</i>	55,521	36.5	753,221
1) Traffic counts, road types, and other transportation info provided by L. Marshall Barron III, VDOT (Marshall.Barron@VDOT.Virginia.gov) 2) After reviewing info, roadtypes, and vehicle miles were entered into the VMT Calculator.			
<b>Subtotal Transportation</b>	55,521	36.5	753,221
<b>Waste</b>			
<b>Warrenton, Virginia</b>			
<i>Fauquier County Landfill</i>			<i>Disposal Method - Managed Landfill</i>
Paper Products	3,044	2.0	
Food Waste	590	0.4	

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Plant Debris	257	0.2	
Wood/Textiles	91	0.1	
<i>Subtotal Fauquier County Landfill</i>	3,982	2.6	
1) Landfill tonnage info was supplied by Donna Pullen, Administrative Assistant, at TOW Public Works. 2) Waste share percentages used are the typical percentages from US communities from data figures of USEPA as of August 2002.			
<b>Subtotal Waste</b>	3,982	2.6	
<b>Total</b>	152,239	100.0	1,716,330